

target and the face of the landscape, which would be a great advantage at most of our military posts, as before explained.

If any "doubting Thomas" among the members of the shooting fraternity will construct such a target, and place it on a bright day by the side of the present regulation target, he will see the force of these remarks.

It may be claimed as an objection to the proposed target, that such good scores may not be obtained with it as with the one now in use. This objection would prove untenable, since *I have had this matter tested practically at the different ranges*, with the most encouraging results. I believe that better scores can be made with the black target than have heretofore been possible. Furthermore, the relief to the marksman's eyes would be of incalculable advantage.

At present most marksmen aim at the body of the target just below and a little to the left of the black bull's-eye; with the proposed target the front sight of the rifle could be outlined against the bull's-eye itself, which would simply cause a slight change in the elevation of the piece, and in the "windage" and "drift" allowed for.

In the second place, as some recumbent posture seems essential to good long-range shooting, I recommend, for reasons already stated, that the *prone position* be made the sole regulation recumbent position, and that the *back* and *side postures* be excluded. The evil effects upon the eye of faulty position have already been sufficiently discussed in the preceding pages, and it is now only necessary to refer to this fact.

I desire to say, in conclusion, that this paper is not intended as an attack upon rifle practice, but is written with a desire to obviate the evil effects, as far as the eye is concerned, likely to result from the performance of this military duty.

FORT LEAVENWORTH, KANSAS.

CONGENITAL STRICTURE OF THE ŒSOPHAGUS: WITH REPORT OF A CASE.

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THE very rare occurrence of congenital stricture of the œsophagus, the duration before obtaining relief, and the fact of the patient having lived for nearly nine years on an entirely liquid diet, make this case of especial interest.

Edith Jackson S. was brought to the New York Eye and Ear Infirmary, March 5, 1892, to be treated for "some trouble when she swallowed." Her mother, who accompanied her, gave the following history: Edith was born on July 5th, nine years ago. As an infant she regurgitated very freely and to such an extent that preparations to receive rejected matter were always requisite. It was especially noticed that not only food was ejected, but also large quantities of ropy mucus.

This occurred during the nursing period of the first fourteen months of her existence, as also for some time after. After being weaned, attempts to feed her with pap and other semisolids were made, with the invariable result of regurgitation. The food thus given was taken with avidity, and some minutes thereafter she would masticate; there was absolutely no contraction of the abdominal muscles, as in vomiting, and the food would slowly be dropped out of the mouth. There was no sickness whatever during these regurgitations, and immediately afterward she would cry for more food, and take it, only to repeat the process. Her mother soon learned to keep her on liquid diet only; as the child grew older, bread, cake, meats, and other solids were given her, with the invariable result of regurgitation a few minutes afterward. Food has remained as long as ten minutes and then it began to return to the mouth until it was all ejected. Liquids have never been swallowed in large quantities at a time, the child sipping them very slowly from a teaspoon. For nine years the child lived on milk and beef-tea, getting ravenously hungry and yet unable to successfully swallow any solid whatever. At the age of three she nearly died of exhaustion, but nutritive enemata and concentrated foods tided her over. With the exception of an attack of pertussis and one of varicella in early childhood she has had no other illness. The family history is not of the best. Her father died of phthisis when she was seven years old, and two of her father's sisters died of the same disease. She has two younger sisters, both of whom are well.

Examination. Patient is very small and thin, and weighs thirty-five pounds. There is no color in her face; lips and conjunctivæ pale. Pulse 100, and not strong. In an attempt to swallow water she sips a little at a time. The child is apprehensive and rebellious.

The diagnosis made was stricture of the œsophagus. With the concurrence of Dr. Asch, who saw the case with me, the patient was directed to come again, prepared for examination under ether. On March 9, 1892, she was etherized in the operating-room, by the house surgeon, in the presence of Drs. M. J. Asch, Leonard, Weil, Van Fleet, and myself. When thoroughly anesthetized, her head and shoulders were supported by an assistant, a mouth-gag was adjusted, and a warmed and lubricated bulbous bougie of a diameter of 6 millimetres was carefully introduced. A distinct grasping of the bulb was felt at the lower end of the œsophagus. A larger-sized bougie was now introduced and immediately removed. Patient rallied well after etherization.

On March 16th patient reported no ill effects from ether nor from introduction of the bougie.

An œsophageal bougie of full size, No. 18 of the English scale, measuring 9 millimetres, was thoroughly softened, warmed, and lubricated. The mouth-gag was applied, with the child held in its mother's lap, and the bougie carefully introduced into the stomach. The compression was felt at its lower end. The bougie was then withdrawn. The effect of this second introduction was wonderful. She was very thirsty after leaving the Infirmary, and drank, hastily and greedily, a pint of milk. She gulped it down. This was about fifteen minutes after the introduction of the bougie. An hour after she took three glasses of milk and ate an egg. The large-sized œsophageal bougies were introduced bi-weekly for four weeks, then weekly, then every fortnight, and then stopped altogether, on June 10th, three months after her admis-

sion. Immediately after the first introduction of bougies she began to eat solid foods, cakes, gruel, bread, meat, potatoes, fruit, etc., and there have been no regurgitations whatever since. An examination made of her on September 23, 1892, shows a healthy color in her face, and an increase in weight of eighteen pounds; weighs now fifty-three pounds; her appetite is good and she eats food in quantities; drinks freely and large quantities at a time. Whereas formerly she never left the house alone, she now goes out and acts as other children do. Body well nourished. Fluids held in the mouth enter the stomach in eight seconds.

A feature of this case worthy of passing notice was the attempts of the child to force the food down and make it remain. She lay on her back with her head far extended and would eat and try to swallow in that position.

Stricture of the œsophagus, as a result of swallowing lye and other acrid poisons, is very frequent. The literature of these is abundant: Campbell reports sixteen cases; and the records are full of cases due to carcinoma, inflammatory changes, and syphilis. Congenital cases are very rare. Ziemssen says: "Congenital atresie and partial defects in the œsophagus, since they are incompatible with long life, should not now call for further remark. But, on the other hand, there are stenoses of the œsophagus, although indeed *very rare*, which, from their anatomical structure (a perfectly healthy condition of the tissues and no trace of scars) as well as from their history (the existence of considerable difficulty in swallowing from the earliest childhood and throughout the whole life), must be considered to be congenital, but which, in spite of considerable narrowing of the tube, permit of a prolongation of life even till old age." He divides congenital strictures of the œsophagus into stenosis of the upper portion and of the lower.

Regarding stenosis of the upper portion he says: "There are only two well-authenticated cases of this kind to be found in the literature of this subject, to which we add a third. In all three the stenosis was located at the entrance of the œsophagus, in two it was a simple ring about the tube, in the third the canal was narrowed for a distance of 8 millimetres. In all three the patients declared that they had suffered from earliest childhood with difficulty in swallowing, which was especially troublesome when solid substances were swallowed. All three died at an advanced age, two by exhaustion from lack of nourishment, the difficulty having increased later in life, and the third died of cancer of the pylorus."

The cases quoted are:

(Everard Home.) Female, aged fifty-nine years; died from exhaustion. Post-mortem showed, immediately behind the first ring of the trachea, a uniform circular contraction formed by the mucous membrane, which presented a perfectly normal and healthy appearance.

(Casani.) Male, aged seventy-seven years; died of exhaustion. Pharynx at lower half was found increased to double its width, and filled with a whitish

pap. Below this was a sudden narrowing in the form of a circular ring, with a puckered edge and a diameter of one millimetre. This led to an equally narrow canal eight millimetres long, in which the mucous membrane lay in longitudinal folds, and which terminated in a funnel-shaped enlargement below. There was not the least change in the mucous membrane at the seat of the narrowing.

(Zenker.) Female, aged sixty-six years, died of cancer of the pylorus. The œsophagus was greatly contracted in its upper portion in a circular form; the mucous membrane was pale, delicate, and unchanged in anatomical character.

Strictures of the lower portion of the œsophagus congenital in origin have been described by Blasius, Cruveilhier, Hilton-Fagge, and Wilks.

In all these cases the stricture affected a small region in the lower part of the tube, and immediately above it the canal had suffered saccular dilatation, in which Cruveilhier found large polypoid vegetations of the mucous membrane, and in Fagge's case an epithelial cancer had perforated the wall.

In Fagge's case, the patient, aged forty-eight years, had difficulty in swallowing for forty years; had to divide food finely. Never regurgitated.

In Wilks' case, the patient died seventy-four years old, of pneumonia. Had difficulty in swallowing and regurgitated food. Had to use quantities of fluid. The stenosed portion would scarcely admit the little finger, while the œsophagus above was enormously distended and hypertrophied.

Koenig says: "As far as congenital strictures are concerned, there is no satisfactory evidence of their existence in the bodies of children. Zenker and Ziemssen have reported three cases, and Blasius and Cruveilhier each one." These do not seem to him to be fully proven to be congenital in origin. He quotes Wernher, who says: "Congenital strictures of a degree sufficient to interfere with deglutition are much more rare than complete occlusions. They are found with a blind pouch or crop-like dilatations of different parts of the œsophagus, occurring oftenest in the upper part." While Koenig is unable to find any literature to support the claims that these contractions and diverticuli are congenital, still he believes that they may occur.

Turner narrates a case of a child, eighteen months old, with symptoms of œsophageal obstruction, who died in a fortnight from inanition and exhaustion. The symptoms whereon the diagnosis was based were, that the child drank ravenously, and after an interval of a half-minute the mouth would be opened in a spasmodic manner, and the greater part of the fluid regurgitated in successive gushes, without retching or exertion except contraction of the abdominal muscles.

Autopsy. Œsophagus at its lower part much dilated, and its muscular coat hypertrophied. Tight stricture at cardiac orifice; a No. 2 catheter passed with difficulty. No appearance of cicatrization.

Crary reports a case, a male aged twenty-five years, admitted to Roosevelt Hospital in September, 1889. Had difficulty in swallowing since birth. Regurgitated as an infant. At the age of twelve he had frequent aggravations of the trouble; could not at such times swallow water, and would have to go to bed until the stricture relaxed. While in France a bougie was passed, but no opinion was expressed. Had recurring attacks, at intervals, of complete stenosis. Food had to be very minutely divided, and often it became neces-

sary for him to leave the table in order to relieve himself of some of the food which he had taken.

Examination revealed malnutrition, and the patient very weak. Stricture suspected, and a No. 20 (French) bougie was passed through the oesophagus into the stomach. The stricture was long, from fourteen to sixteen inches from the teeth, diminishing in calibre as it approached the orifice of the stomach, near which opening it was evidently located.

Bougies were passed tri-weekly for two months, and then passed easily, admitting later an instrument of eight millimetres.

Patient gained in health and strength. There has been no regurgitation since the first bougie was introduced, and with some restrictions he lived comfortably. No specific nor tubercular history. The trouble was probably due to an arrest of development by which the formation of a free communication between the oesophagus and stomach was prevented.

Gerhardt says: "Congenital strictures of the oesophagus are very rare," and mentions those reported in Ziemssen and that of Turner. Ziegler speaks only of those strictures caused by cancer or cicatricial tissue.

Mackenzie says: "Although it is highly probable that the condition is a congenital abnormality, I am not aware that there is any instance on record in which its existence in early life has been proved by post-mortem examination." The diagnosis is not always easy. Hamburger goes extensively into the question of auscultation of the oesophagus, and Mackenzie and Elsberg have also written on that subject. With care, obscure cases can be readily detected by this method.

As to the treatment, dilatation with bougies ranks first. It is necessary to remember, however, that the introduction of bougies must be carefully done, the largest possible size being used to begin with.

A. Jacobi reports a case of stricture of the oesophagus due to swallowing lye, in a child of seventeen months, where attempts had been made to pass oesophageal bougies. There resulted a fistulous tract, commencing in a hole in the mucous membrane and submucous tissue, running along the outer and posterior aspect of the oesophagus to near the neighborhood of the diaphragm, and there perforations had taken place into the right pleural cavity. In the latter place, milk and whiskey were found.

From the foregoing it will be seen how very unusual these congenital strictures are. It is fair to assume that the correctness of the statements of the patients who died as old people, that their trouble dated from infancy, and hence was congenital, may very readily be doubted, although the strictures showed no cicatricial tissue.

Koenig and Mackenzie have, therefore, expressed their doubts.

The cases reported by Turner and Cray, as also the one here reported, demonstrate the fact that congenital stricture of the oesophagus is a condition that may and does exist, and that under careful treatment recovery is possible.

The obstruction in this case was, in all probability, due to a membranous band almost occluding the oesophagus in its lower portion.

NOTE.—The patient has been under observation for one year since the last report of her condition. There has been no return of the re-

gurgitations and she continues to swallow all foods. Has now become a strong and healthy girl, there being a marked contrast to her former appearance. The œsophageal tube, which has been introduced once in every six or eight weeks, is no longer grasped as it readily enters the stomach.

A CASE OF POISONING BY A BELLADONNA PLASTER.

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Miss P., aged about thirty years, a music teacher, was sent me by her physician on account of obscure eye symptoms.

Her complaint was that on rising one morning she found a mist over her vision, and found that she could not read unless she held the book at a good distance. This was on a Monday, but during the week the symptoms were ameliorated by taking a dose of Gregory's mixture. On Sunday, however, they began to return, and by Monday were as bad as ever. On Tuesday she came to consult me. She looked flushed, and her eyes had an unnatural brightness, the pupils were not larger than they often are in those who, like herself, have slight myopia.

What aroused my suspicion was that she was always moving her mouth about in want of saliva, and on inquiry she said that her mouth and throat were painfully dry. Her near point of vision was found to be not nearer than a half-metre, so that, as she had 0.75 D. of myopia, her range of accommodation was only 1.25 D., instead of being, as it should be at her age, 7 D.

Feeling sure that belladonna must be accountable for the symptoms, a searching inquiry was made as to the possibility of her having had it in some prescription or liniment, but all such possibility was denied.

At last she volunteered the confession that she wore a plaster over the lower part of the back, unknown to her physician, and that it was possible this might contain belladonna. Inquiry into her other bodily symptoms placed it so beyond doubt that the suspicion would prove correct that she was simply ordered to remove the plaster and take a purge. This she did, with the result that the symptoms rapidly disappeared, though even eighteen days afterward, when she called again, the near-point had not been quite recovered, and some of the nervous symptoms had not completely disappeared.

The symptoms, which I carefully noted when she first came, were so well marked, and many of them so characteristic, that they are worth recording as a study of the physiological action of belladonna. The dryness of the mouth and throat has already been alluded to; besides this her eyes felt dry, and her skin also. Her pulse was 106, and the apex-beat of the heart very strong and diffused. This is well known to be due to paralysis of the cardio-inhibitory terminations of the vagus. On inquiring about her flushed face, she said she was naturally rather pale, adding: "I never have such a color as I have just now?" Her face felt hot. The eyes appeared smaller (was this due to paralysis of the unstriated muscular fibres of Müller?) and had a piercing look; to relieve their unpleasant dryness she had been obliged to bathe them with milk and water. She says her eyes seemed to have retreated more